

Construction Steps

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3. Permanent preservative coatings to electrostatic discharge sensitive (ESDS) items are normally applied by the manufacturer.

Step 3

Apply a greaseproof wrap only if a soft dry preservative has been applied to the item.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing. Wrap ESDS items in barrier material conforming to MIL-PRF-81705, Type II or III, or an ESD protective cushioning material. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps for other than ESDS items.

Step 5

Place the item (wrapped and cushioned as required) into a close-fitting, heat-sealed bag, conforming to MIL-B-117, Type I, Class E, Style 1, 2 or 3, or Type I, Class F, Style 1, or Type II, Class E, Style 1 or 3, or Type III, Class E, Style I. Bags made from the following material meet the MIL-B-117 requirements:

- X MIL-PRF-131, Type I or II, Class 1 or 2.
- X MIL-PRF-22191, Type I.
- X MIL-PRF-81705, Type I, Class 1 (ESDS items only).

Step 6

Mark the bag in accordance with MIL-STD-129, MIL-HDBK-129, and the marking information given at the end of this chapter.

Note: When specified by the contract or order, a carton or box shall be required to be used with unit container cushioning specified in the contract or order will be placed between the bag and the carton or box. Mark the carton or box in the same manner as the bag.

METHOD 42 CONTAINER, WATERVAPORPROOF BAG, SEALED, CONTAINER

This method is accomplished by placing the item preserved, wrapped and cushioned, as required, into a close fitting inner container. The container is enclosed in a sealed bag. Then, the item within the inner container and sealed bag shall be enclosed within an appropriate outer container. See the construction steps that follow along with the techniques shown in figure 4-31 to accomplish Method 42:

Construction Steps

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps.

Step 5

Select a close fitting inner container from MIL-STD-2073-1C. The following containers are examples of inner containers appropriate for this method:

- X Fiberboard Boxes.
- X Folding Boxes.
- X Set-up Boxes.
- X Metal-edged Paperboard Boxes.

Note: Information of the use and closure of these boxes is given in chapter 6 of this manual.

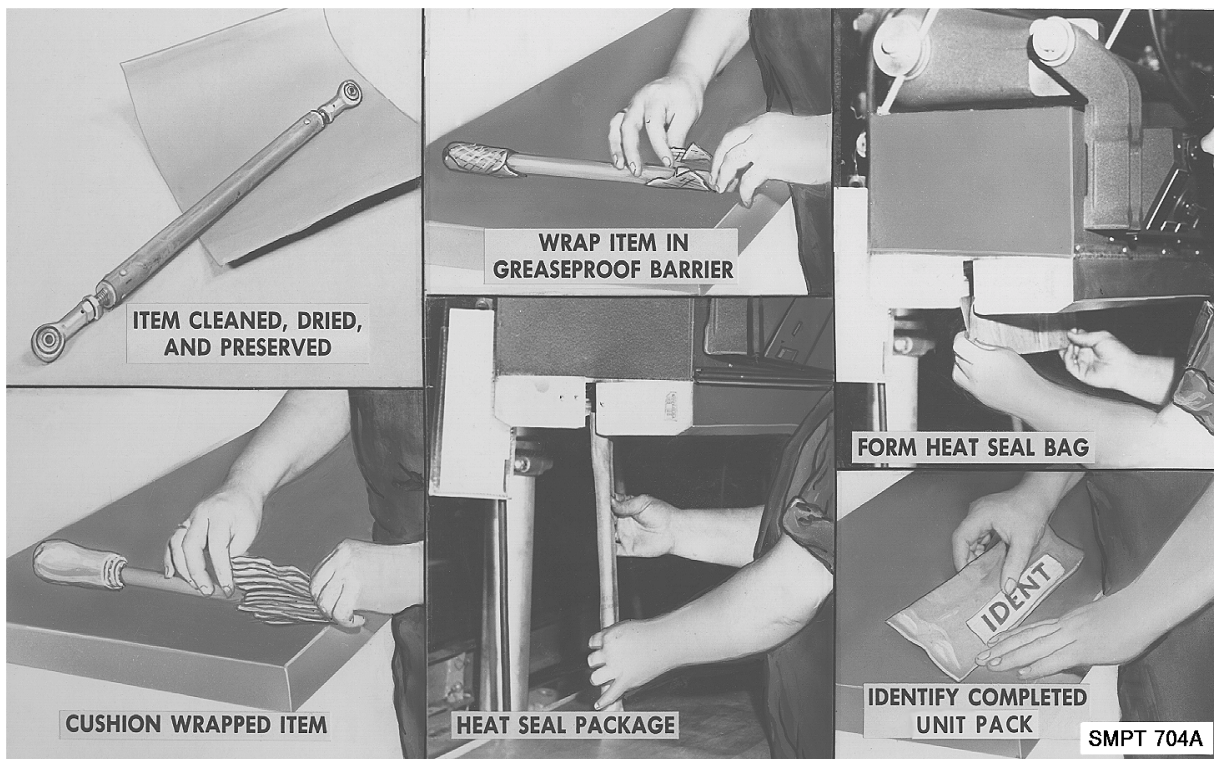


Figure 4-30. Application of Method 41.

Step 6

Insert the item into the container along with the application of cushioning and dunnage as necessary to protect the item as well as the container from the item's projections and sharp edges and also to restrict its movement within the container.

Step 7

Blunt the sharp edges and corners of the box to protect the bag.

Step 8

Enclose the box in a bag conforming to MIL-B-117, Type I, Class E. Use the following material:

- X MIL-PRF-131, Type I or II, Class 1 or 2.

Step 9

Heat seal the bag.

Note: Information on how to make bags (such as the maximum heat seal width) was provided earlier in this chapter under "BAGS, SLEEVES AND TUBING (MIL-B-117)".

Step 10

Enclose the item (within the inner container and sealed bag) in an outer container selected from MIL-STD-2073-1C. The following two outer containers are examples:

- X Fiberboard Box, Weather resistant class and grade (see chapter 6 for information on use and closure).
- X PPP-B-621 Boxes; wood, nailed and lock-corner.
- X PPP-B-601 Boxes; wood, cleated plywood.

Note: When wood or plywood (or wood or plywood in combination with other materials) boxes are used as the outer container, 6 mil polyethylene conforming to A-A-3174 or equivalent material shall be used as an overwrap (tape sealed) around the sealed bag to prevent chafing or rupture and waterproof the case contents. When the primary cushioning is located between the sealed bag and the outer container, the barrier protective wrap is not required.

Step 11

Close the outer container in accordance with the applicable container specification procedures, making certain that no damage is inflicted on the bag.

Step 12

Apply markings to the outer container according to MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.

Note: When the outer container becomes the shipping container, it shall be marked as a shipping container in accordance with MIL-STD-129 and MIL-HDBK-129. In this case, the barrier (bag) will be marked as specified in MIL-STD-129 and MIL-HDBK-129 for unit packs.



Figure 4-31. Application of Method 42.

METHOD 43 - WATERVAPORPROOF FLOATING BAG, SEALED

Method 43 is appropriate to unit pack equipment which has mounting facilities (such as a base plate with holes suitable for mounting the equipment to the base of a container). Generators, electric motors and transformers are examples.

The method is accomplished by attaching an item (preserved, wrapped, cushioned, anchored or shock mounted as required) to the internal supports (blocking) of the container or to one face or the skidded base of the container. This is done such that the watervaporproof bag will maintain its integrity.

Construction Steps

To construct this method, perform the following steps while also observing the construction techniques shown in figure 4-32.

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Note: If only a portion of the equipment is coated (such as the shaft of an electric motor) with a preservative, wrap only that portion with a greaseproof wrap, using tape to secure the wrap.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps.

Step 5

Apply cushioning or other dunnage as necessary to protect the item as well as the bag from the item's projections and sharp edges. Secure cushioning and wraps with string or tape if necessary.

Step 6

Select a barrier (bag) material conforming to MIL-B-117, Type I, Class E, F, or G, Style I, or Type II, Class E, Style I or 3, or Type III, Class E, Style I. You may use the following bag materials that meet the requirements of MIL-B-117 for this method:

X MIL-PRF-131, Type I or II, Class 1, 2 or 3.

Step 7

Position the barrier (bag), with holes to accommodate the mounting bolts, on the mounting base, and seal bolt openings and gaskets with adhesive. See figure 4-32 on how to place and seal the gaskets.

Note: The gasket material quality, gasket application and performance evaluation shall be in accordance with applicable requirements of MIL-E-6060. Unless otherwise specified, gasket material shall conform to MIL-G-12803.

Step 8

Heat seal the bag.

Note: Information on how to make bags (such as the maximum heat seal width) was provided earlier in this chapter under "BAGS, SLEEVES AND TUBING (MIL-B-117)".

Step 9

Apply markings to the outer container according to MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.

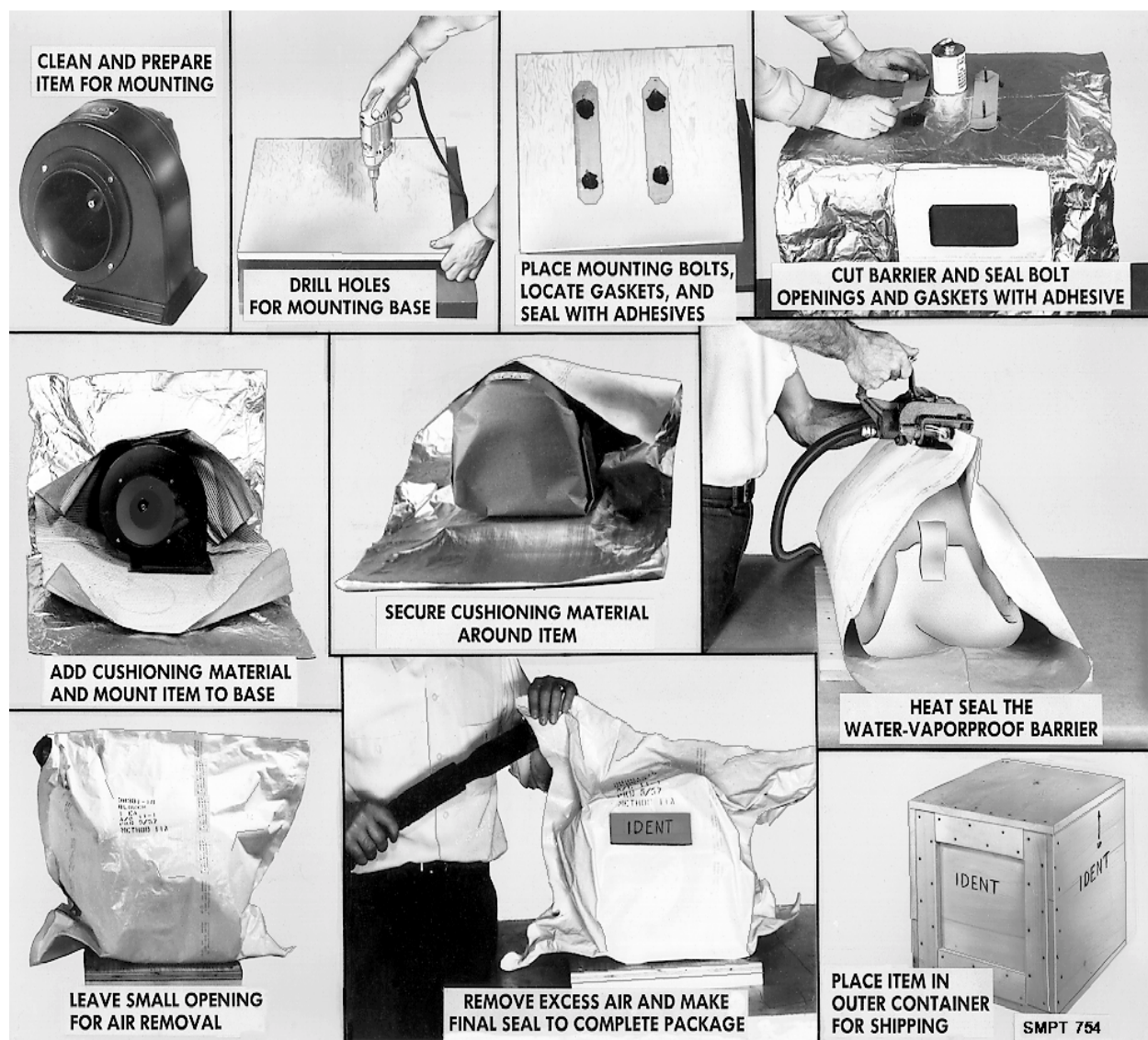


Figure 4-32. Application of Method 43.

METHOD 44 - RIGID CONTAINER (OTHER THAN ALL METAL), SEALED

Items wrapped and cushioned as required shall be enclosed in a sealed, snug fitting, rigid container, other than all metal. Use the techniques shown in figure 4-33 and the following steps to accomplish Method 44.

Construction Steps

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Note: If a greaseproof liner is used instead of a greaseproof wrap, the liner shall conform to MIL-L-45973.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps.

Step 5

Place the item (wrapped and cushioned as required) into a snug fitting, rigid container other than all metal. The following fiber containers may be used:

X PPP-D-723, Type III, Grade A, Class 2, for contents exceeding 20 pounds.

Note: Other sealed rigid containers including reusable plastic or fiberglass containers (other than all metal) listed in MIL-STD-2073-1C may be used when the container body and closure mating surfaces afford a moisturevaporproof barrier with a watervapor transmission rate (WVTR) not exceeding 0.075 grams per 100 square inches per 24 hours, as established by government specifications or when tested in accordance with ASTM D 1008 as appropriate.

Step 6

Close the container in accordance with the container specification.

Step 7

Apply markings according to MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.



Figure 4-33. Application of Method 44.

METHOD 45 - RIGID METAL CONTAINER, SEALED

Method 45 is applied by snugly enclosing the item preserved, wrapped and cushioned, as required, in a sealed, rigid metal container. Use the following steps along with the illustrations shown in figure 4-34 to construct unit packs using Method 45.

Construction Steps***Step 1***

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: If a preservative is not required, go to step 4.)

Note. When specified in the contract or order or when dictated by the requirements of the item, the metal container may be vacuum sealed. Figure 4-35 illustrates a method of vacuum sealing.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Step 4

Apply a noncorrosive, neutral wrap conforming to one of the following specifications: (Note: If a neutral wrap is not a requirement, go to step 5).

- X MIL-B-130.
- X MIL-B-17667.
- X A-A-3174.
- X A-A-1249.

Note: These materials are intended as an initial wrap where a noncorrosive, dust protective wrap is required prior to or as a part of unit packing wherein a greaseproof wrap is not required. They meet the compatibility requirements of MIL-STD-2073-1C and are available at lower cost.

Step 5

Apply cushioning or dunnage or selective support (either rigid or resilient or in combination) to the item or to the container as required to insure against free movement of the item and shock transmissibility.

Step 6

Insert the item into any rigid metal container with machine seamed or reusable gasketed closure having a WVTR not exceeding 0.075 grams per 100 square inches per 24 hours, when tested in accordance with ASTM D 1008, unless a specific type of container is specified in the contract or order. The following container (see chapter 7) are among those that meet the WTVR requirement:

- X PPP-C-96 Metal Cans.
- X MIL-D-6055 Metal Drums.

Step 7

Close the container according to the container specification requirements. Chapter 7 includes closure information for the cans and drums listed in step 6.

Step 8

Apply markings to the container in accordance with MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.

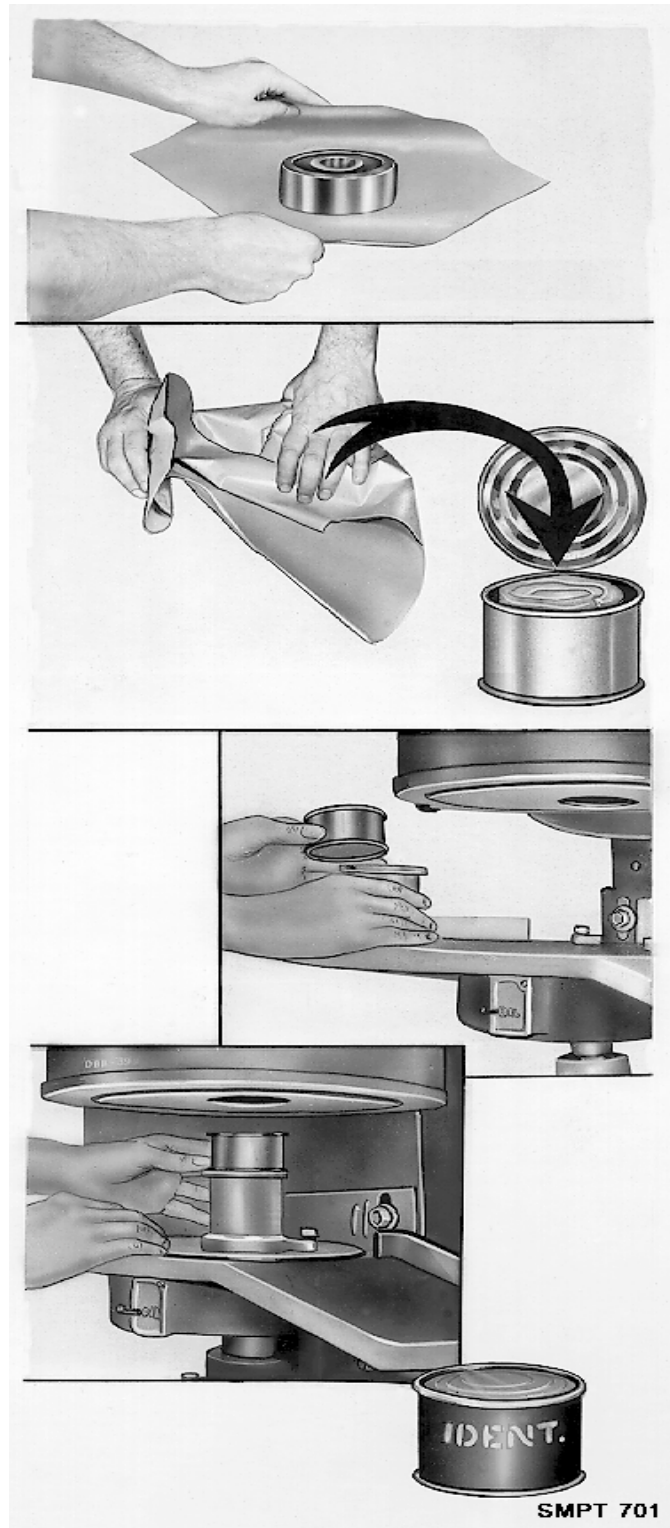


Figure 4-34. Application of Method 45.

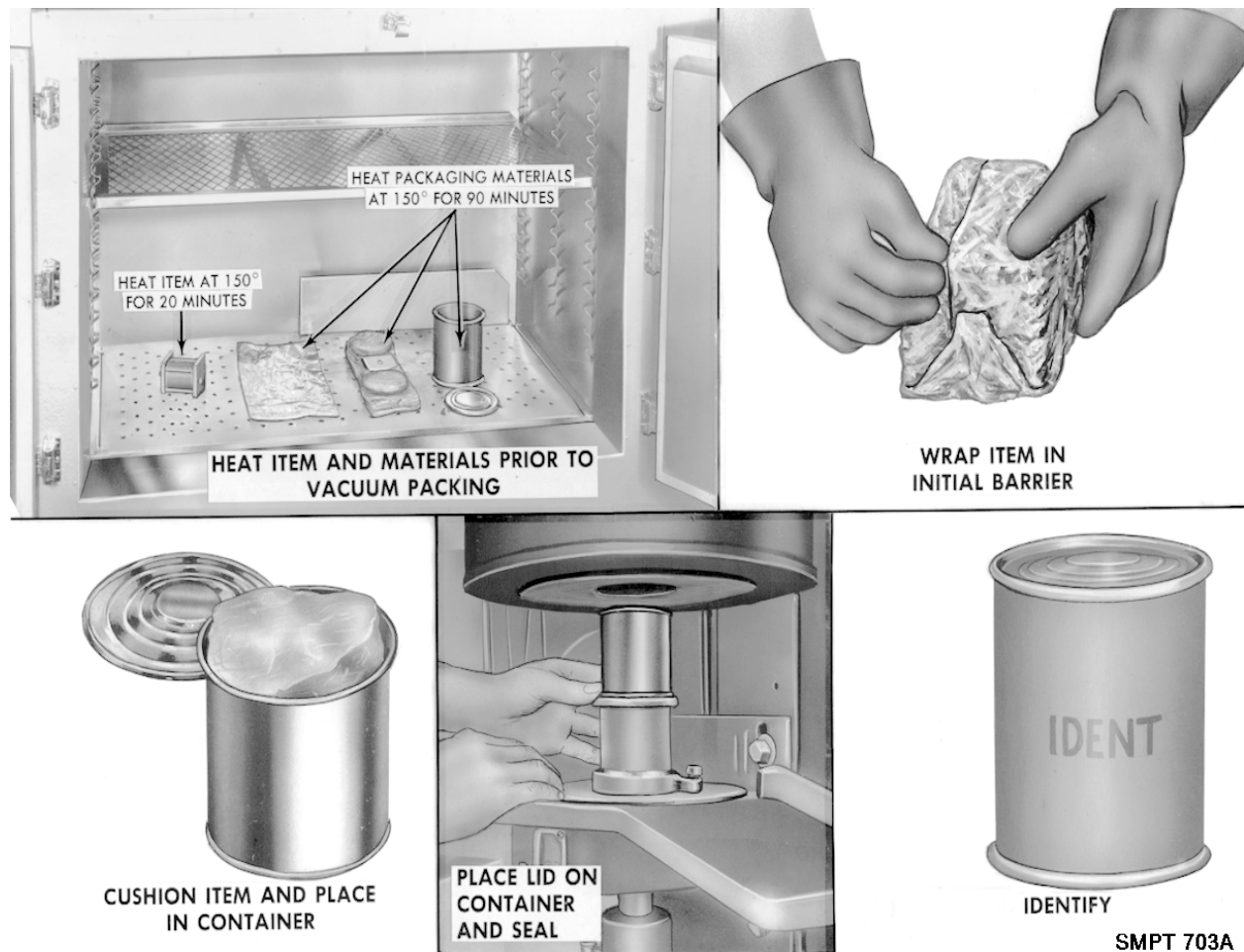


Figure 4-35. Application of method 45, vacuum sealed.

METHOD 50 WATERVAPORPROOF PROTECTION WITH DESICCANT

CONCEPT

Items protected in accordance with Method 50 shall be sealed in a watervaporproof enclosure with activated desiccant as required for the specific method of this group. Unless otherwise stated in the contract or order, unit packs of all methods shall include a humidity indicator.

Relative humidity is the ratio of the quantity of water vapor actually present in the air the greatest amount the air can hold at a given temperature. Once the quantity of water that must be removed to effect and maintain the required low relative humidity has been established, the amount of desiccant determined in accordance with table 4-11 must be provided. Accordingly the volume should be held to a minimum consistent with other packaging requirements.

METHOD

Since experience and tests have proven that corrosion of a clean item will not normally occur when a relative humidity of 30 percent is maintained within a barrier, complete protection for items packed by Method 50 is afforded by keeping the relative humidity below that level.

Usually, 20 percent relative humidity is established in order that small leaks which inadvertently occur will not raise the internal relative humidity higher than 30 percent during a normal storage period. The effectiveness of Method 50 preservation rests upon the following factors:

- X The volume of enclosed space.
- X The surface area of the enclosing barrier.
- X The water vapor transmission rate of the enclosing barrier.
- X The moisture content of item and dunnage at the time of preservation.
- X The quantity of desiccant used.

INTENDED USE

Method 50 preservation is used for items of a highly critical nature which require the highest degree of protection from damage by the effects of water vapor. It is applicable to mechanical or electrical items including assemblies with functional components which, because of their nature, cannot be treated with a preservative. A preservative, when used for additional protection, must be such as to permit the operation of the equipment without removal of the preservative. This method is not used on any item where the withdrawal of moisture would cause damage to the item. The size and weight limits allowed in any barrier bag is established in MIL-B-117 and MIL-E-6060, as applicable.

DESICCANT

Desiccant shall be in standard unit sized bags conforming to MIL-D-3464, type I, unless type II or III is specified or required because of special characteristics of the item. The desiccant shall be located in the pack in a place most accessible to voids in the item or pack interior. Desiccant bags shall be secured within the unit pack by tying, taping, etc., or in specially designed desiccant baskets affixed to the container interior. Desiccant shall be adequately secured so as to prevent its shifting or movement and under no circumstances be permitted to come in direct contact with critical surfaces of the enclosed item. When direct contact is absolutely unavoidable, the desiccant shall be isolated from the item with MIL-B-121, Grade A barrier material.

The desiccant shall not be unnecessarily exposed to the ambient environment when removed from the vaporproof desiccant storage container. Removal of the desiccant and its insertion into the unit pack shall be the last action prior to effecting the final seal of the bag or container.

METHODS UNDER METHOD 50 CONCEPT

Five applications of Method 50 are used. The following general requirements apply to all methods of Method 50:

- X Items shall be sealed in a watervaporproof enclosure with activated desiccant.
- X Unit packs of all methods shall include a humidity indicator.

- X Method 50 labels will be applied to unit packs. A method 50 label is shown in figure 4-36.
- X Items shall be cushioned as required to mitigate shock, thereby preventing physical and functional damage to the item.
- X When bags are used, the sealed edge of the bag that would normally be opened for item inspection shall be of sufficient surface area to permit two subsequent resealings after item inspection, unless otherwise specified.

The five methods of Method 50 are -

- X Method 51 - Watervaporproof bag, sealed.
- X Method 52 - Container, watervaporproof bag, sealed, container.
- X Method 53 - Floating watervaporproof bag, sealed.
- X Method 54 - Rigid container (other than metal), sealed.
- X Method 55 - Rigid metal container, sealed.

METHOD 51 WATERVAPORPROOF BAG, SEALED

Bag, Heat Sealed

Item preserved, wrapped, cushioned and desiccated as required shall be enclosed within a sealed bag. A humidity indicator and Method 50 label is also required. Follow the steps below and observe the techniques shown in figure 4-37.

Construction Steps

Step 1

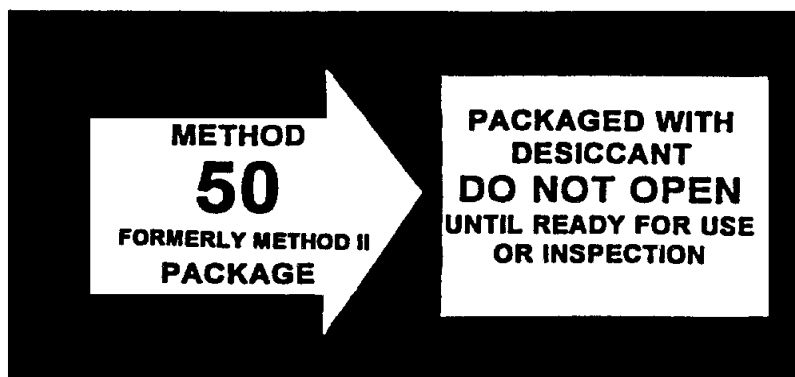
Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: Go to step 4 if a preservative coating is not applied.)

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3. Permanent preservative coatings to electrostatic discharge sensitive (ESDS) items are normally applied by the manufacturer.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item. See the information provided earlier in this chapter under "SURFACES COATED WITH PRESERVATIVE."



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Figure 4-36. Method 50 label.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing, if applicable.

Step 5

Place the item, including the required number of units of desiccant (wrapped and cushioned as required) into a close-fitting, heat-sealed bag, conforming to MIL-B-117, Type I, Class E, F or G, Style 1, 2 or 3, or Type II, Class E, Style 1 or 3, or Type III, Class E, Style I. Bags made from the following material meet the MIL-B-117 requirements:

- X MIL-PRF-131, Type I or II, Class 1 or 2.
- X MIL-PRF-22191, Type I.
- X MIL-PRF-81705, Type I, Class 1 (ESDS items only).

Step 6

Firmly secure the humidity indicator immediately within the closing edge of the bag which is applied in the next step.

Step 7

Mark the bag, including the application of a Method 50 label, in accordance with MIL-STD-129 and MIL-HDBK-129 and the marking information given in the paragraph on "MARKING OF UNIT AND INTERMEDIATE PACKS" and figure 4-46 located at the end of this chapter.

Note: When specified by the contract or order, a carton or box shall be required to be used with the unit container. Cushioning specified in the contract or order will be placed between the bag and the carton or box. Mark the carton or box in the same manner as the bag.

METHOD 52 CONTAINER, WATERVAPORPROOF BAG, SEALED, CONTAINER

This method is made by enclosing the item (preserved, wrapped, cushioned and desiccated as required) in a close fitting inner container selected from MIL-STD-2073-1C, as appropriate, unless otherwise specified. The item within the inner container shall then be enclosed in a sealed bag. Finally, the item within the inner container and sealed bag is enclosed within an appropriate outer container selected from MIL-STD-2073-1C unless otherwise specified in the contract or order. Notice that this method is the same as Method 42 except for the desiccant, humidity indicator, and Method 50 label requirements.

Construction Steps

Construct the method using the steps that follow while observing figure 4-38 for guidance:

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: If a preservative is not required, go to step 4.)

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.



Figure 4-37. Application of Method 51.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Step 4

Apply a noncorrosive, neutral wrap conforming to one of the following specifications: (Note: If a neutral wrap is not a requirement, go to step 5).

- X MIL-B-130.
- X MIL-B-17667.
- X A-A-3174.
- X A-A-1249

Note: These materials are intended as an initial wrap where a noncorrosive, dust protective wrap is required prior to or as a part of unit packing wherein a greaseproof wrap is not required. They meet the compatibility requirements of MIL-STD-2073-1C.

Step 5

Select a close fitting inner container from MIL-STD-2073-1C. The following containers are examples of inner containers appropriate for this method.

- X Fiberboard Boxes.
- X Folding Boxes.
- X Set-up Boxes.
- X Metal-edged Paperboard Boxes.

Note: Information of the use and closure of these boxes is given in chapter 6 of this manual.

Step 6

Insert the item into the container along with the application of desiccant and cushioning and dunnage as necessary to protect the item as well as the container from the item's projections and sharp edges and also to restrict its movement within the container.

Step 7

Blunt the sharp edges and corners of the box to protect the bag before proceeding to the next step.

Step 8

Firmly secure the humidity indicator to the outside face of the inner container facing the closing edge of the barrier bag which is applied in the next step.

Step 9

Enclose the box in a bag conforming to MIL-B-117, Type I, Class E, F or G, Style 1, 2 or 3, or Type II, Class E, Style 1 or 3, or Type III, Class E, Style 1. Also, bags in accordance with MIL-B-6060 shall be used for bag sizes exceeding the limitations of MIL-B-117. The following is a partial list of bag material conforming the MIL-B-117 types, classes and styles:

- X MIL-PRF-131, Type I or II, Class 1 or 2.
- X MIL-PRF-22191, Type I.

Note: When specified in the contract or order, a designated bag will be used.

Step 10

Heat seal the bag leaving sufficient surface area to permit two subsequent resealings after item inspection, unless otherwise specified.

Note: Information on how to make bags (such as the maximum heat seal width) was provided earlier in this chapter under "BAGS, SLEEVES AND TUBING (MIL-B-117)".

Step 11

Enclose the item (within the inner container and sealed bag) in an outer container selected from MIL-STD-2073-1C. The following outer containers are examples:

- X Fiberboard Box, Weather resistant class and grade (see chapter 6 for information on use and closure).
- X PPP-B-621 Boxes; wood, nailed and lock-corner.
- X PPP-B-601 Boxes; wood, cleated plywood.

Note: When wood or plywood (or wood or plywood in combination with other materials) boxes are used at the outer container, 6 mil polyethylene conforming to A-A-3174 or equivalent material shall be used as an overwrap (tape sealed) around the sealed bag to prevent chafing or rupture and waterproof the case contents. When the primary cushioning is located between the sealed bag and the outer container, the barrier protective wrap is not required.

Step 12

Close the outer container in accordance with the applicable container specification procedures, making certain that no damage is inflicted on the bag.

Step 13

Apply markings to the outer container, including the Method 50 label, in accordance with MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.

Note: When the outer container becomes the shipping container, it shall be marked as a shipping container in accordance with MIL-STD-129 and MIL-HDBK-129. In this case, the barrier (bag) will be marked as specified in MIL-STD-129 and MIL-STD-129 for unit packs.

METHOD 53 FLOATING WATERVAPORPROOF BAG, SEALED

This method is accomplished by attaching an item (preserved, wrapped, cushioned, desiccated, anchored or shock mounted as required) to the internal supports (blocking) of the container or to one face or the skidded base of the container. This is done such that the watervaporproof bag will maintain its integrity.

Construction Steps

To construct this method, perform the following steps while also observing the construction techniques shown in figure 4-39.

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: If a preservative is not required, go to step 4.)

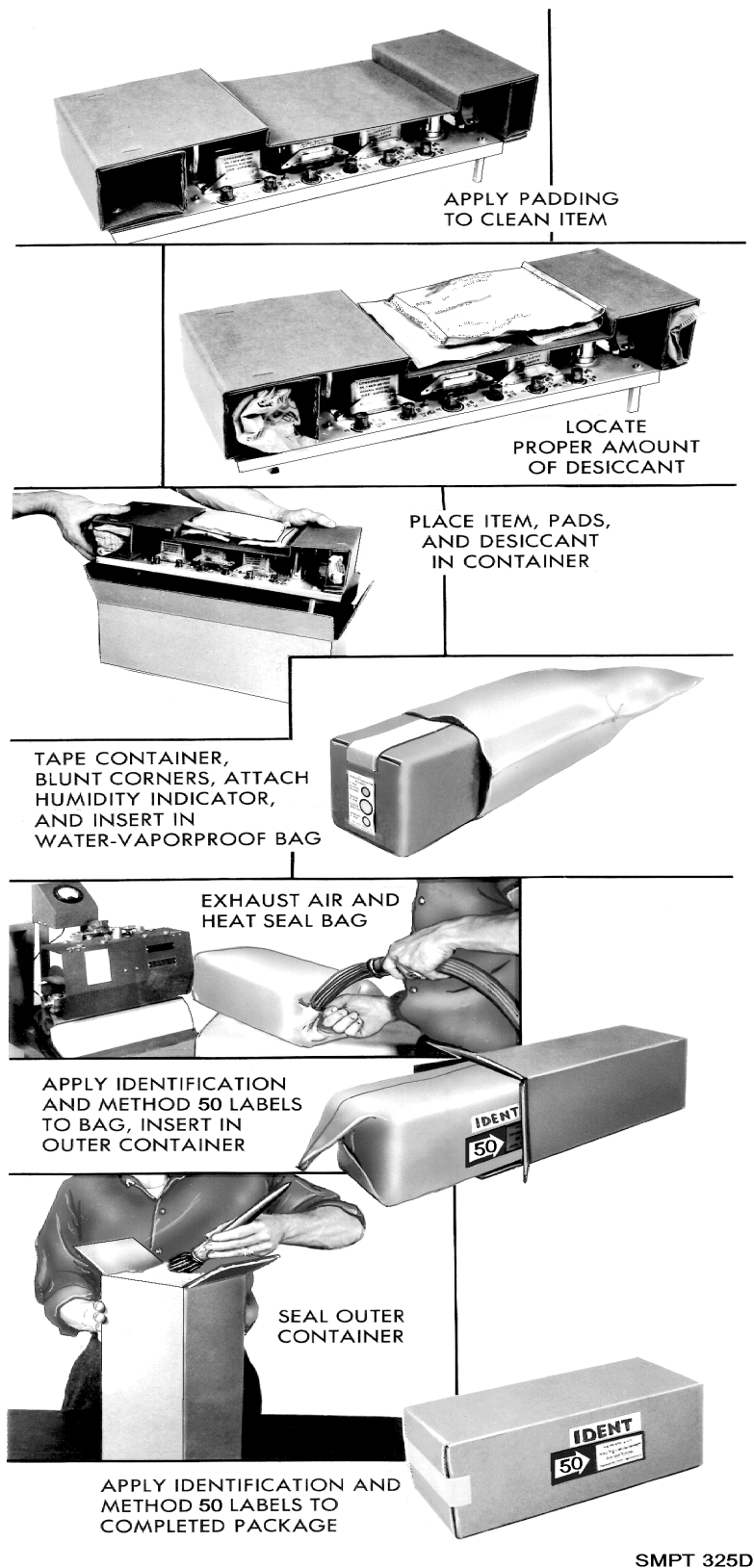


Figure 4-38. Application of Method 52.

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Note: If only a portion of the equipment is coated (such as the shaft of an electric motor) with a preservative, wrap only that portion with a greaseproof wrap, using tape to secure the wrap.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or part of unit packing. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps.

Step 5

Apply desiccant to control the relative humidity and cushioning or other dunnage as necessary to protect the item as well as the bag from the item's projections and sharp edges. Secure cushioning and wraps with string or tape if necessary.

Step 6

Select a barrier (bag) material conforming to MIL-B-117, Type I, Class E, F, or G, Style 1, 2 or 3, or Type II, Class E, Style I or 3, or Type III, Class E, Style I. You may use the following bag materials (that meet the requirements of MIL-B-117) for this method:

- X MIL-PRF-131, Type I or II, Class 1 or 2.
- X MIL-PRF-22191, Type I
- X MIL-PRF-81705, Type I, Class I (ESDS items only).

Step 7

Position the barrier (bag), with holes to accommodate the mounting bolts, on the mounting base, and seal bolt openings and gaskets with adhesive. See figure 4-39 on how to place and seal the gaskets.

Note: The gasket material quality, gasket application and performance evaluation shall be in accordance with applicable requirements of MIL-E-6060. Unless otherwise specified, gasket material shall conform to MIL-G-12803.

Step 8

Firmly secure the humidity indicator immediately within the closing edge of the barrier bag.

Step 9

Heat seal the bag leaving sufficient surface area to permit two subsequent resealings after item inspection, unless otherwise specified.

Note: Information on how to make bags (such as the maximum heat seal width and size and weight limits) was provided earlier in this chapter under "BAGS, SLEEVES AND TUBING (MIL-B-117)".

Step 10

Apply markings to the bag, including the Method 50 label, in accordance with MIL-STD-129 and MIL-HDBK-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see figure 4-46.

Note: When the outer container becomes the shipping container, it shall be marked as a shipping container in accordance with MIL-STD-129 and MIL-HDBK-129. In this case, the barrier (bag) will be marked as specified in MIL-STD-129 and MIL-HDBK-129 for unit packs.

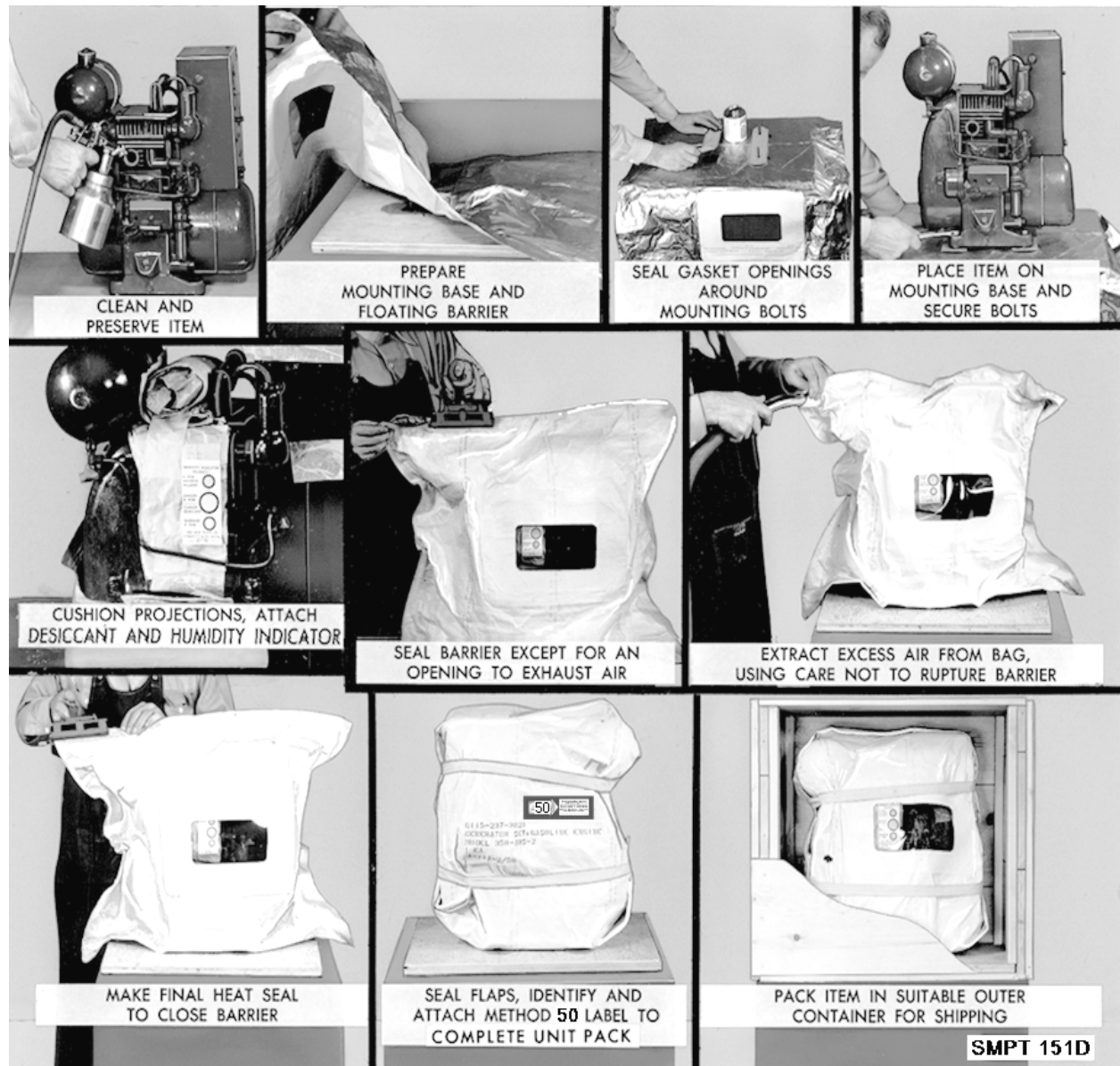


Figure 4-39. Application of Method 53.

METHOD 54 RIGID CONTAINER (OTHER THAN ALL METAL), SEALED

This method is accomplished by enclosing the item, preserved, wrapped, cushioned and desiccated as required, in a sealed, close fitting, rigid container other than all metal.

CONSTRUCTION STEPS

To accomplish this method, use the steps below as well as the illustrations provided in figure 4-40.

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: Go to step 4 if a preservative coating is not required.)

Step 2

Select and apply a preservative coating to the item (or parts of the item), if required, using selection criteria and application procedures given in chapter 3. Permanent preservative coatings to electrostatic discharge sensitive (ESDS) items are normally applied by the manufacturer.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Note: If a greaseproof liner is used instead of a greaseproof wrap, the liner shall conform to MIL-L-45973.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as part of unit packing. See "METAL SURFACES NOT COATED WITH PRESERVATIVES" to identify noncorrosive wraps.

Step 5

Place the item along with the required number of bags of desiccant (wrapped and cushioned as required) into a snug fitting, rigid container other than all metal. The following fiber containers may be used:

X PPP-D-723, Type III, Grade A, Class 2, for contents exceeding 20 pounds.

Note: Unless otherwise specified, other sealed rigid containers other than all metal listed in MIL-STD-2073-1C may be considered for use as long as the watervaporproofness of the container provides a WVTR not exceeding 0.075 grams per 100 square inches per 24 hours when tested in accordance with ASTM D 1008.

Step 6

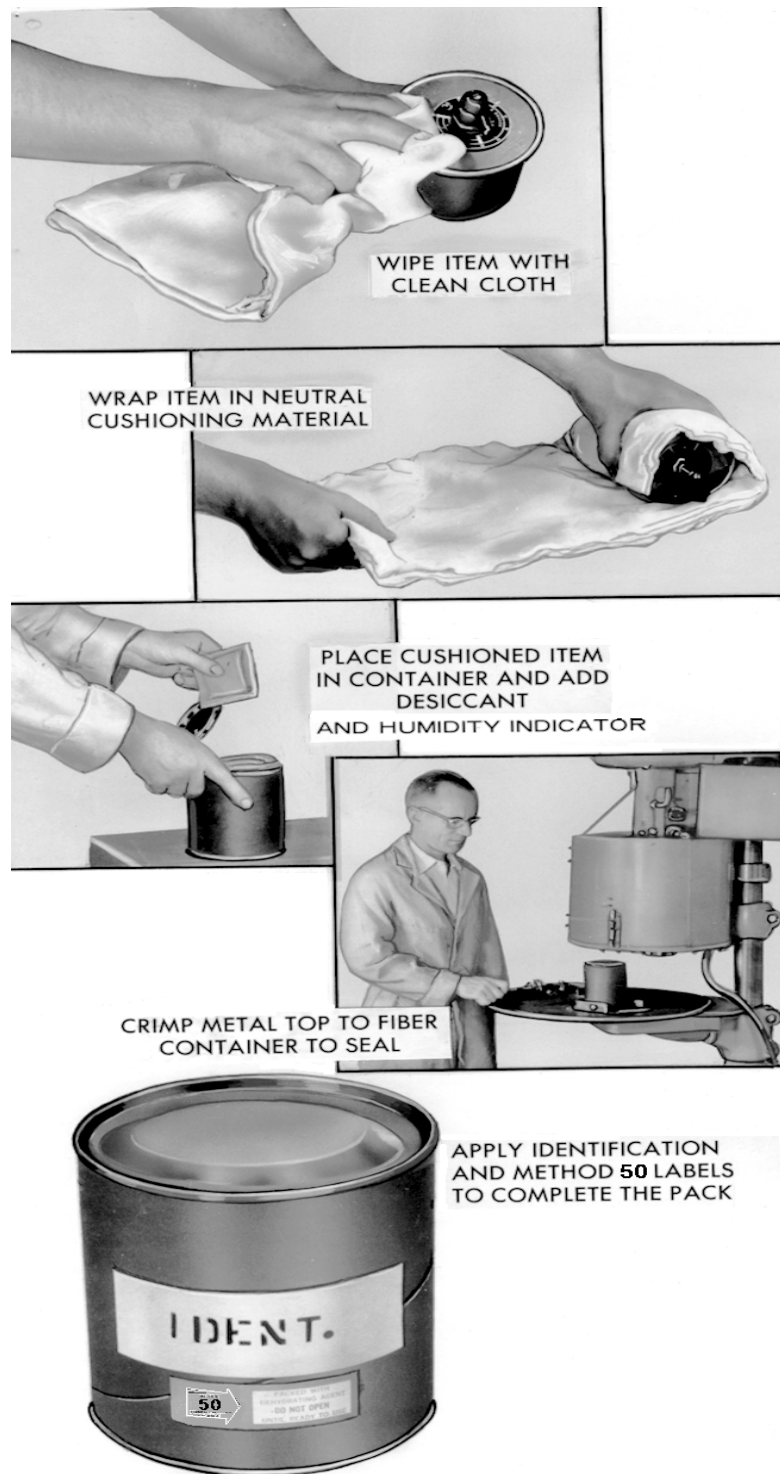
Firmly secure the humidity indicator immediately within the cover of the container.

Step 7

Close the container in accordance with the container specification.

Step 8

Apply markings, including the Method 50 label, according to MIL-STD-129. See the paragraphs under "MARKING OF UNIT AND INTERMEDIATE PACKS" near the end of this chapter. Also see the example of unit pack markings in figure 4-46.



SMPT 742C

Figure 4-40. Application of Method 54.

METHOD 55 - RIGID METAL CONTAINER, SEALED

Item preserved, wrapped, cushioned and desiccated as required shall be enclosed within a snugly fitted, sealed, metal container.

Construction Steps

To accomplish this method, use the steps below as well as the illustrations provided in figure 4-41.

Step 1

Clean and dry the item, as required, using one or more of the processes and procedures given in chapter 2. (Note: Go to step 4 if a preservative coating is not required.)

Step 2

Select and apply a preservative coating, if required, using selection criteria and application procedures given in chapter 3. Normally, contact preservatives are not required for this method unless required by a contract or order.

Step 3

Apply a greaseproof wrap only if a soft drying preservative has been applied to the item.

Step 4

When greaseproofness is not a requirement, apply a neutral wrap where a noncorrosive, dust protective wrap is required prior to or as a part of unit packing, if applicable.

Step 5

Apply the required number of units of desiccant along with cushioning or dunnage or selective support (either rigid or resilient or in combination) to the item or container as required to insure against free movement and protect the item from shock damage.

Step 6

Insert the item into any rigid metal container with machine seamed or welded closure or reusable gasketed closure having a WVTR not exceeding 0.075 grams per 100 square inches per 24 hours, when tested in accordance with ASTM D 1008 unless a specific type of container is specified in the contract or order. The following is a partial list of containers authorized for this method:

- X PPP-C-96 Metal Cans.
- X MIL-D-6055 Metal Drums.

Step 7

Firmly secure the humidity indicator immediately within the cover of the container.

Step 8

Close the container according to the container specification requirements. (Note: Chapter 7 includes closure information for the can and drum shown in step 6.)

Step 9

Mark the bag, including the application of a Method 50 label, in accordance with MIL-STD-129 and the marking information given in "MARKING OF UNIT AND INTERMEDIATE PACKS" and figure 4-46 at the end of this chapter.



Figure 4-41. Application of Method 55.

QUANTITY PER UNIT PACK (QUP)

Unless otherwise specified by the acquiring activity, the quantity per unit pack (QUP) shall be determined in accordance with MIL-STD-2073-1C. Except for the several categories given below, you must consult MIL-STD-2073-1C for QUP requirements.

HI-VALUE OR HI-PRIORITY REPAIRABLE ITEMS

A QUP of one (1) will be established for all items identified as repairable (depot or field level) or items designated Hi-value or Hi-priority.

CONSUMABLE ITEMS

QUP shall be one (1) for all consumable items with a unit cost of \$50.00 or more. Items of less than \$50.00 requires the use of MIL-STD-1073-1C to determine the QUP.

IRREGULAR, DELICATE OR FRAGILE ITEMS IN METHOD 50 UNITS

The QUP for items which are unit packed in accordance with Method 50 of MIL-STD-2073-1C and items of irregular configuration, delicate or fragile nature, not lending themselves to multiple packs, is one each.

QUALITY ASSURANCE PROVISIONS

MILITARY PACKING EXAMINATIONS AND INSPECTIONS

MIL-STD-2073-1C suggests that, due to the unique environment to which military packages are often exposed, examinations of preservation and packing inspections be considered when developing the quality system in accordance with ANSI/ASQC-Q9002, Quality Systems Model for Quality Assurance and Production Installation and Servicing (DOD adopted). Preservation examinations and packing inspections will be discussed in subsequent paragraphs.

WORKMANSHIP

Workmanship shall be such that, when the proper procedure is followed, materials and equipment being processed will receive the required protection against corrosion, deterioration, and damage during shipment and storage and will require the minimum of processing for service.

TESTING OF PRESERVATION METHODS

The tests described herein are used to determine the effectiveness of the various methods of preservation as set forth in MIL-STD-2073-1C. When a combination of methods is used for a specific item, tests applicable to the various methods employed will be listed in table 4-13. To be acceptable, the packaging materials and the item within the unit pack must show no signs of damage or operational malfunction due to deterioration as a result of a test.

Military packages shall be subjected to the preservation inspection criteria as directed in Table G.I. of MIL-STD-2073-1C. More specifically, packages must not have the defects specified in Table G.I. The criteria of Table G.I. is, partially, based upon the testing requirements of Table G.II, in appendix G, MIL-STD-2073-1C.

DETERMINATION OF PRESERVATIVE COMPOUND APPLICATION

The continuity and appearance of preservatives after application shall be determined visually. The retention of preservatives shall also be determined by visual examination. The surfaces of the items protected by the application of preservatives shall be rejected if the surface coatings are not uniform and show

evidence of preservative decrements or corrosion at points of contact of the item with the barrier. Hard preservative films shall be examined closely for breaks in the coating. Criteria for visual inspections of items are listed in MIL-STD-2073-1C, Table G.I., "Preservation Inspection Provisions."

Table 4-13. Schedule of Quality Conformance Tests.

METHOD (note 1)	LEAK TEST	HEAT-SEALED SEAM TEST	CONTACT PRESERVATIVE	MARKING & LABELING (note 2)	WORKMANSHIP (hints) (notes 3 & 4)
10	----- ---	-----	----- -----	Markings on wrap and container when used. (see note 11). Identification not required on wraps placed in snug containers where identification is on the containers.	Dunnage and wrapping of container, as applicable, to prevent contamination and physical damage in storage.
20	----- ---	-----	Required	See Method 10	See Method 31
31	Required	Required (Note 10)	-----	Markings applied on bag & container when used (note 11)	Appropriate size bag. Minimum air void. Cushioning as required.
32	Required	Required	-----	Markings applied on barrier and outer container when used.	Minimum void. Cushioning or blocking as required. Corners of inner carton blunted.
33	Required	Required (Note 10)	-----	Markings applied on bag and container when used. (Note 11)	Appropriate size bag. Minimum air void. Cushioning as required.
41	Required (Note 5)	Required	when specified	Marking applied on bag & container when used (Note 11)	See Method 31
42	Required (Notes 7 & 9)	Required	when specified	See Method 32	See Method 32
43	Required (Notes 6 & 9)	Required	when specified	See Method 32	Minimum air void. Cushioning or blocking as required.
44	Required (Note 8)	-----	when specified	Marking applied on container	Min. air void. If additional protection other than basic wrap is needed, cushioning or blocking should be used.
45	Required (Note 8)	-----	when specified	Marking applied directly on metal containers	See Method 44

METHOD (note 1)	LEAK TEST	HEAT-SEALED SEAM TEST	CONTACT PRESERVATIVE	MARKING & LABELING (note 2)	WORKMANSHIP (hints) (notes 3 & 4)
51	Required (Note 5)	Required	-----	See Method 33	Desiccant, proper amt. used. Humidity indicator properly placed. Window when required. With flexible barrier, sufficient material at closure edge. Corners of inner carton blunted for Method 52.
52	Required (notes 5, 7, & 9).	Required	when specified	Markings applied on barrier & outer container.	See Method 51
53	Required (notes 5, 6, & 9).	Required	when specified	See Method 52 and note 11.	See Method 51
54	Required (Note 8)	-----	-----	Marking applied on container.	See Method 51
55	Required (Note 8)	-----	-----	Marking applied directly on metal container.	See Method 51

Notes.

1. Determination of cleanliness required for all methods.
2. When a container for a unit or multiple unit package is used also as an exterior shipping container, the marking applicable to shipping containers as specified in MIL-STD-129 shall be used in lieu of pack markings. Identification is not required on wraps placed in snug containers, where identification is on the container.
3. These provisions are meant to be in addition to those listed in Table G.I. of MIL-STD-2073-1C.
4. Materials for preservation-packaging shall be as required for the specific method and as specified in the contract or order.
5. When size or shape of the pack precludes the use of the vacuum chamber test the hot water technique or vacuum retention test may be used in lieu of the vacuum chamber test.
6. Vacuum Retention Test may be used in lieu of the Vacuum Chamber Test.
7. When specified by the procuring agency, the Vacuum Retention Test shall be used on specified items in lieu of the Vacuum Chamber Test.
8. Pneumatic Pressure Test may be used in lieu of the Vacuum Chamber Test. MIL-C-3955 cans may be tested by the Submersion Test in lieu of the Vacuum Chamber Test.
9. Remove outer container prior to testing.
10. A cold-sealed seam test as defined in MIL-B-22020 shall be substituted in cases where a VCI treated cold-sealed bag is employed as the unit container.
11. Transparent or opaque labels may be inserted in transparent unit containers when the label can be placed in a stationary position and will not affect or be affected by the method of preservation. Opaque labels shall not obscure more than 50 percent of one surface of transparent unit containers.

LEAKAGE TESTS

Unit packs shall be tested for leaks in accordance with one of the following techniques (tests) of Method 5009 of Federal Test Method Standard No. 101 and are required by table G.II. of MIL-STD-2073-1 for the applicable method of preservation. Materials such as containers, wraps, dunnage, etc., shall be removed from the watervaporproof barrier before testing the pack.

WETTING AGENT

As an alternative to the use of the aerosol solution recommended by Method 5009 of FED-STD-101, a solution of 4 grams of water-soluble detergent conforming to type I of MIL-D-16791 per gallon of test water may be used to release entrapped air so that actual leakage of air through the barrier may be detected.

SELECTION OF TECHNIQUE

The most appropriate technique will depend principally upon the construction, size and weight of the unit pack and the information needed. There may be more than one technique applicable to certain unit packs.

Hot water technique

Use this technique for large unit packs. Observe evolution of air bubbles at each position of the sample. Bubbles which appear on the surface of the unit pack but are not released or are released at a slowly decreasing rate are not to be construed as indication of failure. There shall not be a steady stream or recurring succession of bubbles from any surface or seam.

Squeeze Technique

Small unit packs constructed of flexible materials such as plastic film may be tested using this technique. During sealing as much air as possible is entrapped within the flexible bag at normal conditions as if for shipment and then is squeezed to increase the internal air pressure as the container is observed to detect the leaks. There shall not be a leak with bubble-supporting film.

Vacuum Retention Technique

This technique does not specifically locate leaks and may not indicate the existence of tiny leaks in a large unit pack. The technique may be performed using either a sealed rigid container (see the first bullet below) or a sealed flexible bag (see the second bullet below) as follows:

- X Sealed rigid container. When air in the sealed rigid container has been evacuated to a constant specified pressure, allow the sealed container to remain undisturbed for 10 minutes. The loss of vacuum from the sealed rigid container system shall not exceed twenty-five percent of the original vacuum.
- X Sealed flexible bag. Sufficient air shall be drawn from the sealed flexible bag to cause the bag material to cling snugly to the enclosed item. Allow the bag to remain undisturbed for two hours at room temperature. Grasp the bag and draw it away from the item; then release it quickly. The bag shall remain taut and cling to the item. The stretched bag shall not cause the flexible bag to lose its tautness after remaining undisturbed for two hours. Figure 4-42 shows the vacuum retention technique used on a sealed flexible container system.

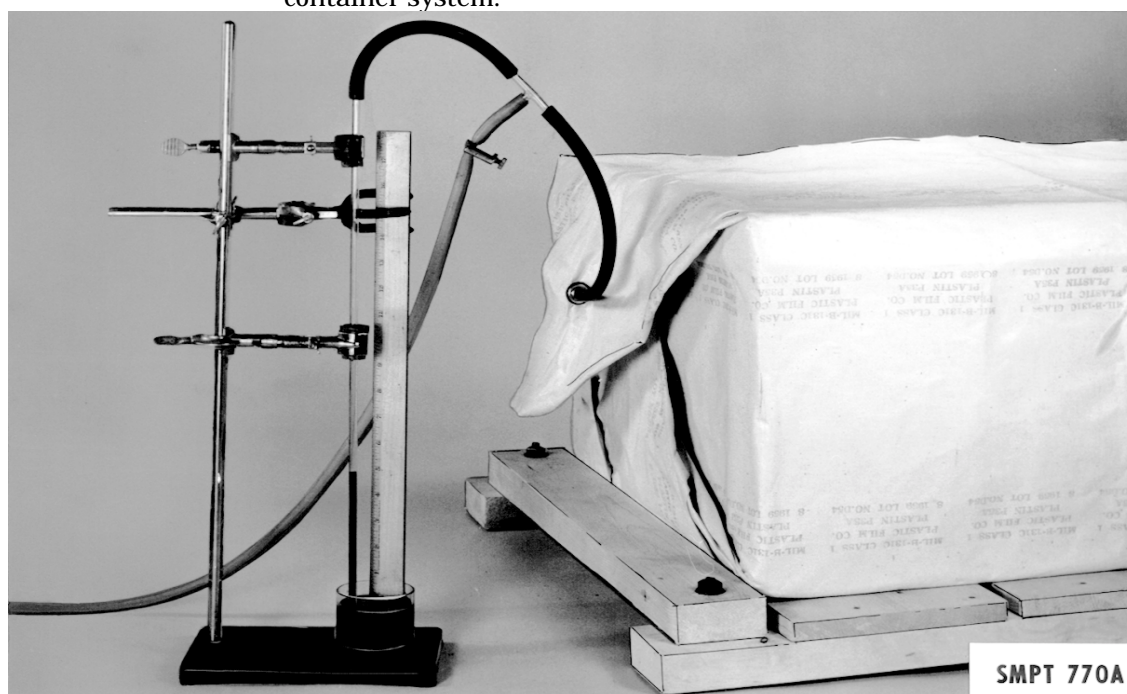


Figure 4-42. Vacuum retention technique.

Submersion (or Immersion) Technique

This technique for detecting water leakage is not as sensitive as the air leakage tests, but it is appropriate to reveal whether or not water might leak into the unit packs, and depending upon the duration of the test, gives some indication of the extent to which the materials used in the pack are waterproof. After submersion and before opening the sealed system, carefully dry the outside. Open the sealed system and note whether leakage has occurred. There shall be no evidence of moisture within the bag. Figure 4-43 shows details of the submersion technique.

Pneumatic Pressure Technique

The pneumatic pressure technique is primarily appropriate for rigid containers. Neither the hot water nor the pneumatic pressure techniques are appropriate for rigid containers that are sealed with tapes. The submersion technique must be used. When the sealed system is pressurized to a constant specified pressure and the line to the compressed air supply is closed, read and record the initial pressure. When required to pinpoint leaks, coat surfaces with a soap solution or submerge the system under water and record the results. Read and record the final gage pressure. Repeat the test if there is any loss in pressure and no leaks are detected. During the pneumatic pressure technique test, there shall be no loss of gage pressure for a period of 30 minutes. When a water solution or immersion procedure is used, there shall be no evidence of air leakage as evidenced by soap bubbles increasing in size or being blown away by the escaping air or by evidence of a steady stream or recurring succession of bubbles from any surface. See "Submersion Technique" in figure 4-43.

HEAT-SEALED SEAM TEST**SELECTION OF SAMPLES FOR TEST**

Selection of the heat seals shall be obtained from sealed unit packs. The number of sealed specimens required will be in accordance with sampling procedures described in ANSI/ASQC-Q9002. Requirements for conducting the test are based on the method of preservation and as described in paragraph G.4.3. of MIL-STD-2073-1C.

Alternate Sampling Procedure for Heat-Sealed Seam Test

When heat seals are made with equipment designed to control the temperature, dwell time and pressure, test samples may be prepared from specimen heat seals in lieu of taking samples directly from heat sealed packs. Specimen heat seals shall all be prepared daily prior to production from sample(s) of each material sealed on each sealing device. Machine settings used in production shall be identical with the settings used in fabrication of test specimens. In cases where any of the alternately prepared heat seal specimens fail the seam strength test, tests of heat seals from actual unit packs shall be performed as necessary to assure that unit pack seals meet the requirements given in the next paragraph.

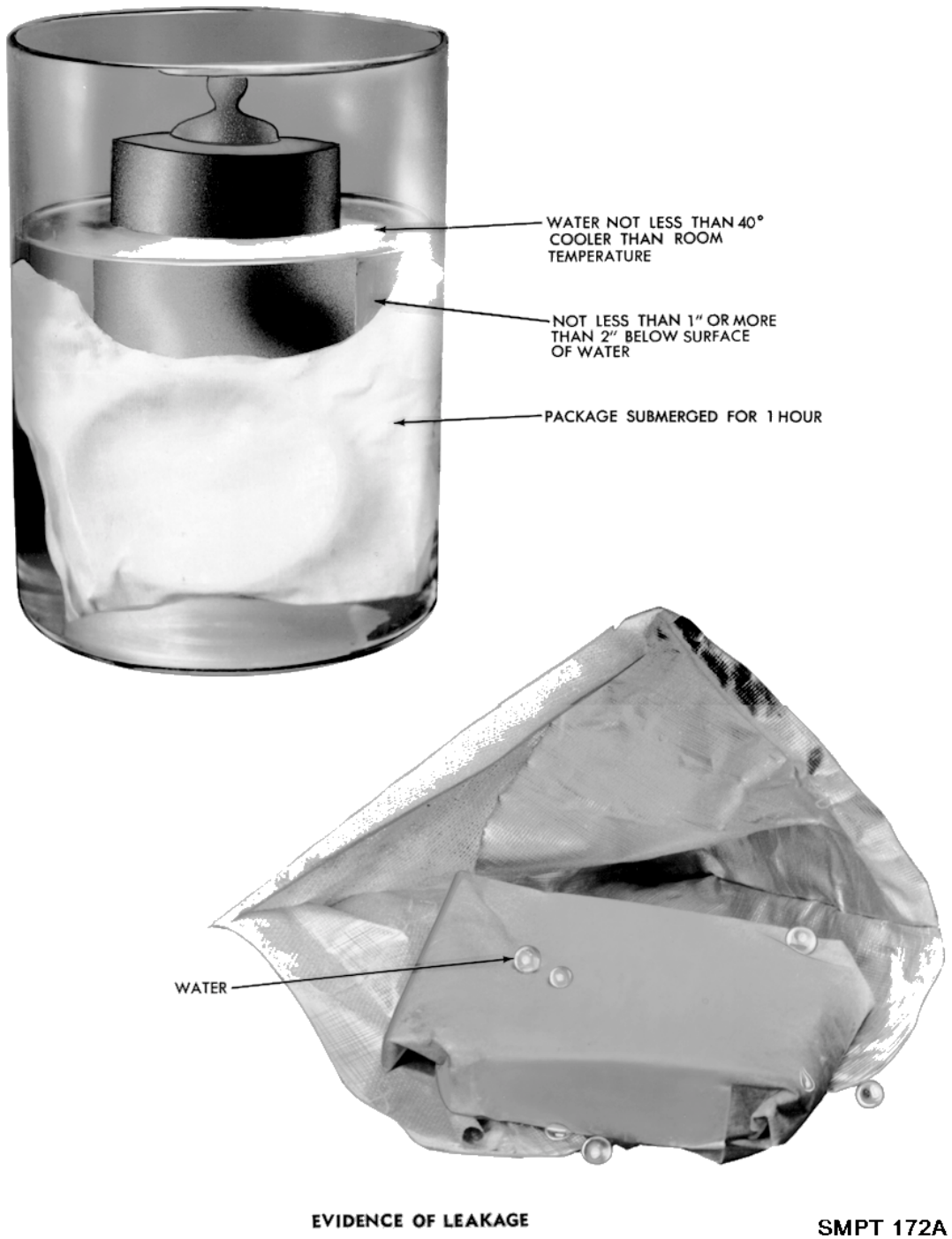
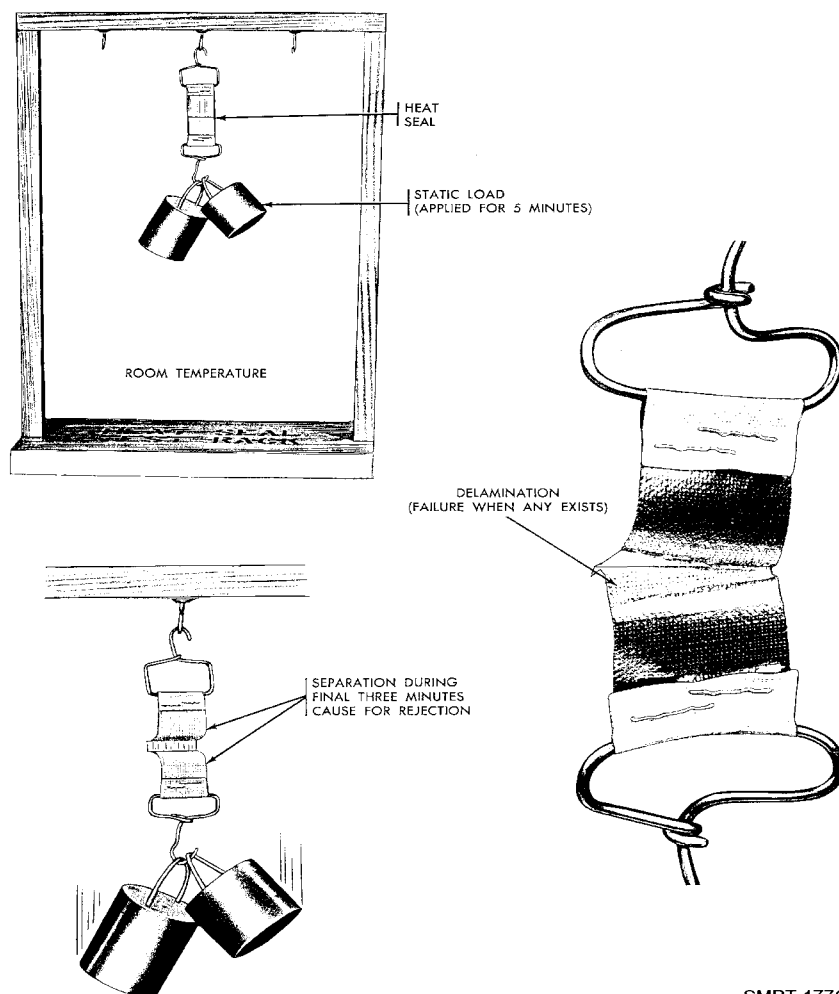


Figure 4-43. Submersion (immersion) technique.

Performance of Heat-Sealed Seam Test (see figure 4-44)

The heat-sealed seam test shall be performed in accordance with Method 2024 of Federal Test Method Standard No. 101 as follows:

- X After the heat sealed seams are cooled (one hour), sections of the heat seals 1 inch in width cut perpendicular to the line of the seal will be obtained from the test specimens or pack barriers as applicable. The length of the legs of the test section is not critical.
- X The sections will be unfolded and clamped with the line of the seal perpendicular to the direction of the load application. The seams will be positioned midway between the jaws of the testing clamps.
- X A static load will be applied slowly and uniformly without impact and allowed to act for 5 minutes at normal room temperature.
- X Any separation at the heat sealed area will be noted, without disturbing the seal, after 2 minutes and at the end of the 5-minute interval.
- X The static load shall be 36 oz plus or minus 2 ounces when barriers conform to MIL-B-121. However, when the barrier materials conform to A-A-3174, MIL-PRF-131, or MIL-PRF-22191, the static load weight shall be 50 ounces plus or minus 2 ounces.
- X A five percent reduction in static load weight is permitted when the room temperature in the test area exceeds 90°F.



SMPT 177C

Figure 4-44. Heat-sealed seam test.

Interpretation of Results

Partial separation of the heat seal is acceptable within the first two minutes of the test to allow areas of partial fusion adjacent to the actual seal to pull apart. Any selection of the heat-sealed area during the final 3 minutes of the test will be cause for rejection. The heat-sealed seam test depicted in figure 4-44 is a specimen from a barrier material that will be used to make unit packs.

CONTAINER PERFORMANCE TESTING

UNIT CONTAINER

The unit container shall be subject to various handling, vibration, stacking, and other performance tests which are delineated in –

- X ASTM D4169, “Standard Practice for Performance Testing of Shipping Containers and Systems.

MIL-STD-2073-1C recommends the use of ASTM D4169 among other non-Government documents. For example, MIL-STD-2073-1C also supports the use of “Quality Assurance” provisions with the following DOD adopted document:

- X ANSI/ASQC-Q9002, Quality Systems – Model for Quality Assurance and Production Installation and Servicing.

MIL-STD-2073-1C explains that the “contractor shall implement and maintain a quality system that satisfies program objectives and meets the requirements of ANSI/ASQC-Q9002.”

Except for hazardous materials packaging, package testing for design validation shall conform to –

- X Applicable performance tests (in sequence) of ASTM D 4169.
- X Preservation inspections outlined in Appendix G, MIL-STD-2073-1C.

The steps detailed in ASTM D 4169, leading to performance testing of containers are as follows:

- X Define the Shipping Unit (See “Terminology” in ASTM D 996).
- X Establish “Assurance Levels” by specifying the level of test intensity required for the package. For example, “Assurance Levels” denotes the level of intensity based on its probability of occurring within a distribution cycle (DC).
 - Level I – a high level of intensity but low probability.
 - Level II – the middle level or less than level I but greater than level III below.
 - Level III – a low level of intensity but high probability of occurring.
- X Determine Acceptance Levels. For example, *when level II is used, based upon the value and volume of the shipment, then, the criterion for passing is that
 - no product damage occurs, and,
 - all packages are in good condition.

*Note: An updated ASTM D 4169 should be consulted before key decisions are made.

DOD levels of protection for Military packing may be equated in the following manner:

<u>Commercial</u>	↔	<u>Military</u>
Assurance Level 1	↔	Level A protection
Assurance Level 2	↔	Level B protection
Assurance Level 3	↔	(N/A) per DOD policy

Determine the Distribution Cycle (DC). This means the sequential listing of the elements expected to occur for a specific routing of a shipping unit, e.g., from production to ultimate consumption. ASTM D 4169 lists ten (10) different DCs, but only seven (7) examples will be shown in the following table for the purpose of elucidating points concerning Government shipments.

DC Element*	DC Description	Test Required
A	Manual Handling	Drop
B	Mechanical Handling	Drop, Stability
C	Warehouse Stacking	Compression
D	Truck and Rail Transport (stacked or unitized)	Vibration
F	Loose-load vibration	Repetitive Shock
H	Rail Switching	Longitudinal Shock
J	Environmental Hazard	Cyclic Exposure

* Three other Hazard Elements are listed in ASTM D 4169.

Formulate a Test Plan. ASTM D 4169 suggests the sequencing of tests such as in the following manner:

Sequence	ASTM Test Required	Approved Methods	Degree or Test Level**
1 (A/B)	Handling	ASTM D 1083-91	**
2 (C/D)	Stacking	ASTM D 642	**
3 (F)	Vibration	ASTM D 999-91, Method C	**
4 (A/B)	Handling	ASTM D 1083-91	**
5 (C/D)	Stacking	ASTM D 642	**

**The test level or degree is determined by the engineer as to what shall be appropriate according to the container being tested. For example, sequence 5 may require compression to 756 lbs per container. Consult ASTM D 4169 for details.

The remainder of the other steps in the testing procedure are as follows:

- (6) Selecting representative samples for the test
- (7) Conditioning samples.
- (8) Performing tests in accordance with the test plan.
- (9) Evaluating the test results.
- (10) Determining the test results.

APPLICABILITY OF TESTS

Small Containers

The free-fall drop test, super-imposed loading and vibration test shall apply to small containers; either one or both vibration tests in table 4-14, or as modified by table 4-15, may be performed at the contractor's option. Small containers are those having no one edge or diameter of the container exceeding 60 inches and/or a gross weight of 150 pounds or less. Any container not exceeding the above dimension and weight criteria but equipped with skids shall be considered a large container for testing purposes.

Large Container

All rough handling tests shall apply to large containers. Either one or both vibration tests shall be conducted at the option of the contractor. However, tipover tests will apply only when specified. Either impact test shall be conducted at the option of the contractor. Large shipping containers are those measuring more than 60 inches on any one edge or diameter, or those which, when loaded, have gross weights in excess of 150 pounds or those which have skids.

INTERPRETATION OF RESULTS

Any damage resulting from the rough handling tests that would prevent the container from performing its intended function will be cause for rejection.

DETERMINATION OF PRESERVATION RETENTION

DETERMINATION

Samples will be examined, where applicable, for retention of the preservative compounds. Figure 4-45 shows examples of this visual test.

INTERPRETATION OF RESULTS

Evidence of failure of retention of the preservative or evidence of corrosion, particularly at points of contact of the item with the barrier, will be cause for rejection.

Table 4-14. Rough handling tests.

Test	Methods of FED-STD-101	Special requirements or exceptions
Free-fall drop tests: Corner drop Flat drop	5007 Procedure E 5007 Procedure B	See note 1 See note 2 See note 2
Tipover	5018	See note 4
Rotational drop tests: Edgewise Cornerwise	5008 5005	See note 1
Impact tests: Pendulum Incline	5012 5023	See note 1
Superimposed load (Stackability with dunnage) (Uniformly distributed without dunnage)	5016 5017	See note 3
Vibration: Repetitive shock Sinusoidal motion	5019 5020	See note 1

Notes:

1. Unless otherwise specified, the contractor shall have the option as to what method is to be applied in accomplishing the free-fall rotational, impact and vibration tests.
2. Containers employing internal shock mitigation systems, cushioning, blocking or bracing shall be subjected to both corner and flat drop tests.
3. Unless otherwise specified, both methods shall be applied.
4. Not required unless specified.

Table 4-15. Graduated drop and impact test heights.*

Gross weight of container and contents	Edgewise drop (2 drops each end)	Cornerwise-drop test (2 drops on each of 2 diagonally opposite corners of bottom)	Impact test (1 impact on each of 2 opposite ends)	
Pounds	Height of drop (inches)	Height of drop (inches)	Pendulum impact (inches)	Incline impact (feet)
150-250	30	30	14	7.0
Over 250 thru 500	24	24	11	5.5
Over 500 thru 1000	18	18	8	4.0
Over 1000	12	12	5	2.5

Note:

* Excludes Method 5007.

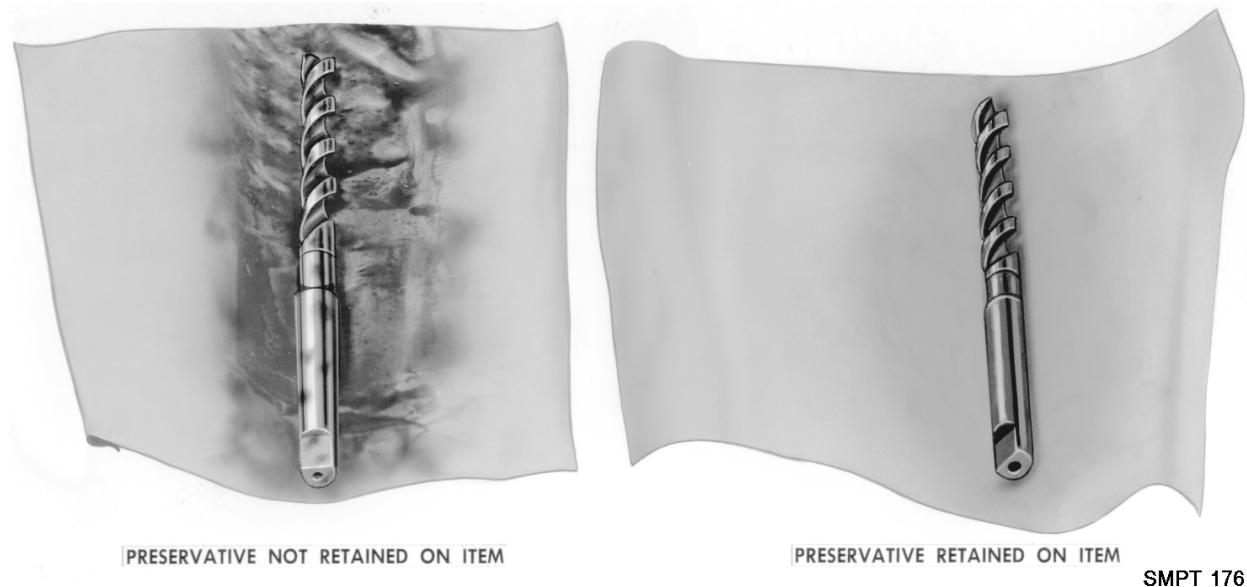


Figure 4-45. Determination of preservative retention.

DISPOSITION OF SAMPLES

All samples used for inspection and tests will be reprocessed as necessary. They may, after reprocessing in accordance with the original method of preservation, be considered a part of the original lot. When the packed item may have been damaged as a result of testing, it will be inspected and tested as necessary to determine its acceptability.

MARKING UNIT AND INTERMEDIATE PACKS

GENERAL

Markings applied to labels or applied directly to barriers or interior containers identify the packaged item and give other important information in regard to the unit or intermediate pack. Lack of proper markings on these packs will cause serious difficulties and problems in the supply system. A unit or intermediate pack is not complete until it has been properly identified.

MIL-STD-129 MARKING REQUIREMENTS

The marking of unit and intermediate packs will be done in accordance with the requirements of MIL-STD-129/MIL-HDBK-129.

Identification Markings

Unless specifically exempted in the procurement contract or order, the following minimum identification information shall be marked on all unit packs, intermediate containers, and unpacked items in the order listed (see figure 4-46).

NSN/NATO Stock Number

The stock number shall include spaces or dashes and any prefix or suffix shown in the contract or requisition. The stock number shall be in-the-clear and bar coded. If no NSN is assigned, then this line may be omitted. For ammunition, when a DOD Identification Code (DODIC) is specified, it shall be placed on the same line as the NSN/NATO stock number.

Part Number (PN)

The part number cited in the contract shall be shown (except for ammunition items with NSN/DODIC designations). If the item has no PN assigned to it or if no PN is required, then nothing is shown.

Quantity and Unit Of Issue (UI)

A nondefinitive UI shall be accompanied by a quantitative expression such as "1 RO (100 FT)."

Contract Number or Purchase Order Number

This information shall include the four-digit delivery order or call number, when used.

Military Method and Date of Unit Preservation

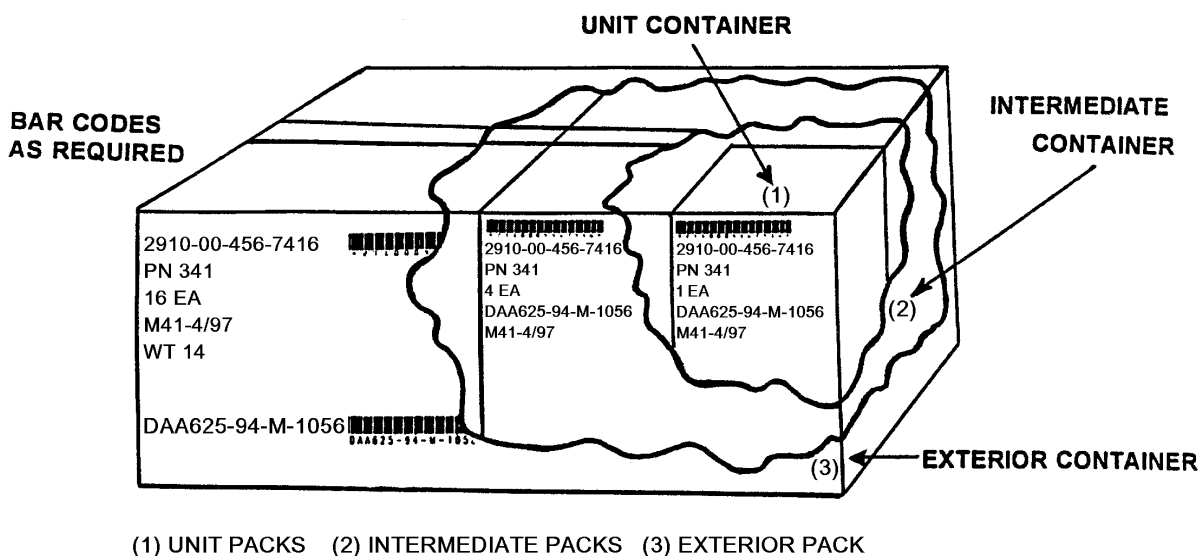
For example, "M41-4/97" - method 41 preservation from MIL-STD-2073-1C, was provided April 1997. Use of the letter "M" in the first position indicates that the pack is a military preservation method; "41" is the method number; and "4-97" indicates the date of preservation (month and year).

Special Markings

Special markings consist of markings and labels such as Method 50, shelf-life, and the ESD sensitive devices attention label for unit and intermediate packs. Special markings will be in accordance with MIL-STD-129.

Bar Code Markings

The bar code and human readable interpretation (HRI) of the NSN/NATO stock number shall be applied to all unit packs and intermediate containers when required by MIL-STD-129, see figure 4-46. The bar coded NSN/NATO stock number shall consist of the basic 13 data characters. Prefixes and suffixes to the stock number, as well as spaces and dashes, shall not be barcoded. Detailed descriptions and applications of bar coded markings are found in MIL-HDBK-129.



SMPT 536A

Figure 4-46. Unit pack and intermediate container identification markings and exterior container identification and contract data markings (including bar code markings).